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*Summary Report of the Geological Survey Department [of Canada]
for the Year 1900. Ottawa, 1901.*

Among the more interesting features of the work of the year are (1) a series of experiments in separating the magnetic element from black auriferous sands by a magnetic separator, and thereby concentrating the gold in the non-magnetic residues (collected by J. C. Gwillim, treated by J. B. Porter); (2) the discovery of salt at St. Grégoire in a red formation referred to the Medina, which throws light on the conditions attending the origin of that formation in common with other red sand and marl deposits; (3) a survey by J. McAvoy of the Crows Nest coal field, which is estimated to contain over 22,000,000,000 tons of workable coal of excellent coking qualities and low percentage of ash or other deleterious substances; (4) additional discoveries of Cretaceous coal in northern British Columbia, indicating that "the coal-bearing Cretaceous rocks occupy a much larger area than had been supposed between the 55th and 57th parallels of latitude, while anthracite coals have actually been found in the region about the head-waters of the Skeena and Stikine rivers" (J. S. O'Dwyer and A. H. Dupont); (5) a further report on the Klondike district, dealing with its indurated series and its gravels, gold and copper deposits, lignites, and glaciation (R. G. McConnell); (6) the exploration by J. C. Gwillim, of the Atlin district (about 60° lat. and 134° long.); (7) additional results in the Kootenay district; (8) an outline of explorations, by J. M. Bell, about Great Bear Lake and Great Slave Lake; (9) a brief statement of work on the crystalline area northwest of Lake Superior, by William McInnes; (10) a report of work north of Lake Superior, by Robert Bell, relating especially to iron ore developments; (11) studies, by W. A. Parks, in the Muskoka district; (12) examination of the region south and east of Ottawa, by Dr. Ells; (13) studies in the vicinity of Montreal, by O. E. LeRoy; (14) the examination of Shefford Mountain, by J. A. Dresser; (15) work in the Lake St. John district, by G. A. Young; (16) work on the great slate belt of New Brunswick, by L. W. Bailey, in which fossils indicating Ordovician and Cambrian ages were found; (17) investigations on the surface geology of northwestern New Brunswick, by R. Chalmers; (18) work in Nova Scotia on the coal field, by H. Fletcher and M. H. McLeod, and on the gold field by Mr. E. R. Faribault; (19) outlines of chemical, paleontological, and natural history investigations.

The preliminary determination of the geologic series of the Atlin district is as follows :

1. Sandstones and argillites of probable Cretaceous age, in the basins of southern Taku arm and Atlin Lake, with an expected continuation to the south-east by Pike Lake, and the Nakina River.

2. The characteristic rocks of Pine Creek basin are different varieties of magnesian combinations, together with some greenstones of a diabasic character. Magnesite, serpentine, dunite, greenstone, actinolite slates and a very friable gray limestone are the chief rocks. These were not seen outside of the Pine Creek and McKee Creek basins excepting in two or three localities. They extend in patches across Atlin Lake westward into Taku inlet and possibly over towards Taku arm to a point five miles south of Tooche River. Another area of these typical rocks is found about Chehalis Creek, south of Gladys Lake, as mentioned previously.

3. Cherty quartzites and various kinds of clay-slates, together with patches of gray or black limestone distributed over the great flats west of Dawson Peaks and Gladys Lake, O'Donnel River basin, and eastwards to Teslin Lake at its southern end.

4. Great masses of crystalline limestones on northern Taku arm, Little Atlin Lake, Lower O'Donnel River, and at the junction of Silver Salmon and Nakina Rivers.

5. Late eruptive rocks of basaltic and porphyritic characters, all about the southern parts of Atlin Lake, constituting the central portions of most of the groups of mountains there.

6. Granites of the Coast Range at the south end of Taku arm, and isolated masses of granite from the northern end of Atlin Lake eastwards across Surprise Lake, and Snowdon Mountains to near Teslin Lake ; also McMaster Mountains east of Lower O'Donnel River, and the boulder-stream plateaus seventeen miles eastward, from Ruth Lake on the Taku trail.

The conclusions relating to the ages of the rocks in the Kootenay district are as follows :

The crystalline gneisses and schists are of uncertain age, probably they include rocks of different age, but they are, at all events, among the oldest rocks of the district. The Nisconlith rocks are Lower Paleozoic, supposed to be about Cambrian. The Cache Creek rocks are Upper Paleozoic, probably Carboniferous. This is the age also assigned to most of the greenstones (andesites, porphyrites, serpentines, etc.), and the limestones and argillites associated with them. Some of the andesite and agglomeratic rocks in the Trail Creek district are no doubt younger, but there is no definite information regarding their age except that they are older than the conglomerates and the Rossland granite. The gray granite which cuts the greenstones is probably

about Jurassic. The monzonite-like rocks appear to be younger than the gray granite, which would indicate that they belong to the Cretaceous.

The conglomerates are amongst the younger rocks. The Lake Mountain conglomerate is supposed by Mr. McConnell to be Tertiary. It bears a strong resemblance, both lithologically and stratigraphically, to the conglomerates associated with the Tertiary volcanics on the Kettle River, which are supposed to be of Tertiary age. The Rossland granite, which sends dykes through the conglomerates both on Sophie Mountain and on the Kettle River, is evidently younger than these. Dr. Dawson has observed granite very much like the Rossland granite, cutting the Cretaceous rocks, in the Kamloops district. The Rossland granite, again, is newer than some of the basalts, as inclusions of the latter were found in it, and reddish porphyry dykes, seemingly identical with those from this granite, were observed cutting the lower volcanic beds. There seems good ground, therefore, for supposing this granite and the accompanying porphyries to be Tertiary (R. W. Brock).
C.

Aus den Hochregionen des Kaukasus. Wanderungen Eslebnisse, Beobachtungen von GOTTFRIED MERZBACHER. Two volumes, 1920 pages, 246 illustrations from photographs, 3 maps. Leipzig: Duncker & Humblot, 1901. Price, 40 marks.

This is another great work on the Caucasus, which may be compared favorably with that by Freshfield. The two large volumes by Merzbacher deserve a more extended review than it is possible to give them at this time. They present in very attractive form the result of much labor in exploring the peaks and snowfields, the glaciers and valleys of the lofty Caucasus, as well as in study and observation of the country and its peoples. Much labor has also been bestowed upon the preparation of the book, which appears in the character of the 246 illustrations, most of which, from photographs taken by the author, have been redrawn with great success artistically, especially those by E. T. Compton. The three topographic maps of the region, on a scale of 1 : 140,000, furnish a great deal of valuable detail. A most convincing evidence of the care taken with the preparation of the book is the index of 117 double-columned pages. So also are the frequent bibliographic references.

The first chapters are devoted to the general discussion of the orography and structure of the high Caucasus; their glaciers, hydrography, passes, and subdivision into three groups, western, central, and